Space Weather Forecast

Issued on Saturday, 06 August 2022 at 12:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor geomagnetic storms possible next 24 hours.

Slight chance of Moderate-class flares with R1-R2 Radio blackouts throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours with isolated Common-class flares. There are currently five numbered regions on the disc, most of which are small, weak and appear magnetically stable. A new region has recently emerged in the northeast quadrant. No significant Coronal Mass Ejections (CMEs) are currently considered to be Earth directed.

Solar Wind / Geomagnetic Activity: The solar wind started at slightly elevated levels and is now Low, under a waning fast wind from a coronal hole. Total interplanetary magnetic field was weak and the important northwards/southwards direction fluctuated weakly as well. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or very low solar activity with a slight chance of a Moderate-class flare. New groupings of sunspots might rotate onto the disc in the next couple of days, thereby increasing flare probabilities however to balance this one of the regions in the southwest quadrant will rotate off on Day 4 (09 Aug).

Solar Wind / Geomagnetic Activity: Currently it is considered that no significant CMEs observed are likely to be Earth directed. Solar winds starting around 350 km/s prior to a new coronal hole fast wind is expected to arrive, with an enhancement to 500-550 km/s likely by day 2 (7 Aug), before declining through Day 3 (08 Aug), before a further increase is likely on Day 4 (09 Aug) from further coronal hole.
Geomagnetic activity starting Quiet before becoming Unsettled to Active in the next 12-24 hours, with a slight chance of isolated Minor Storm intervals occurring. Activity should decline through Days 2 and 3 (7 and 8 Aug) to mainly Quiet, before another increase on Day 4 with a slight chance of a geomagnetic storm interval once more.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	40	5	10
Strong	G3	No	1	5	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	20	25	25
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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